

Rock Island Hydro Project Update

Commission Presentation
November 5, 2018

Overview – RI Hydro Projects

- Accomplishments for 2018
- Rehab challenges
- Schedule evaluation
- Recommended schedule

- Accomplishments -

PH2 Governor Controls, MCM, DFR, Excitation, Relays
2012-2018 \$13.5M



- Accomplishments -

PH2 Draft Tube Gates – 2010 to 2019



10/24/2017



CHelan COUNTY
POWER

www.chelanpud.org

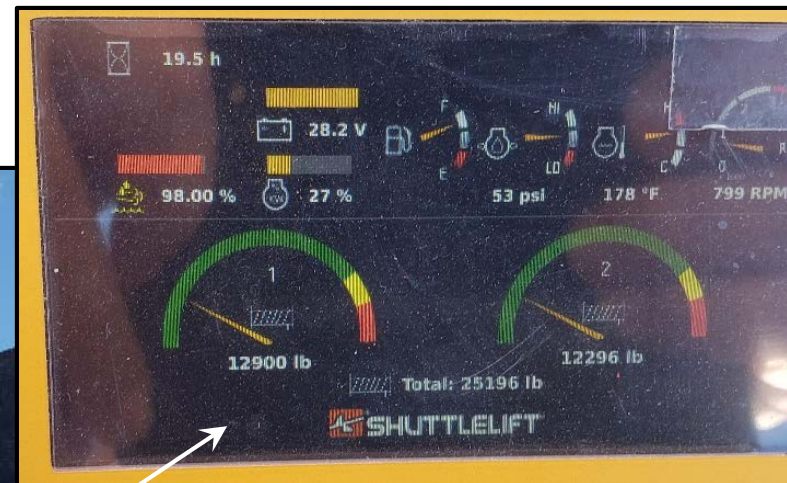
- Accomplishments -

Rock Island Storage Building – Dec. 2018 \$5M



- Accomplishments -

RI Facilities - Shuttle Lift Purchase Aug. 2018 \$950k



-Accomplishments-

RI Domestic Water Tank – June. \$2.4M



- Accomplishments -

PH1 House Unit



- Accomplishments -

B1-B4 Modernization Prep Work Sept. 2018 \$2.65M



- New headgates received and installed
- New stoplogs received and installed
- New dewatering equipment in service

- Accomplishments - B1-B4 Equipment supply – new runner



- Accomplishments -

B6 Modernization Completed in April 2018

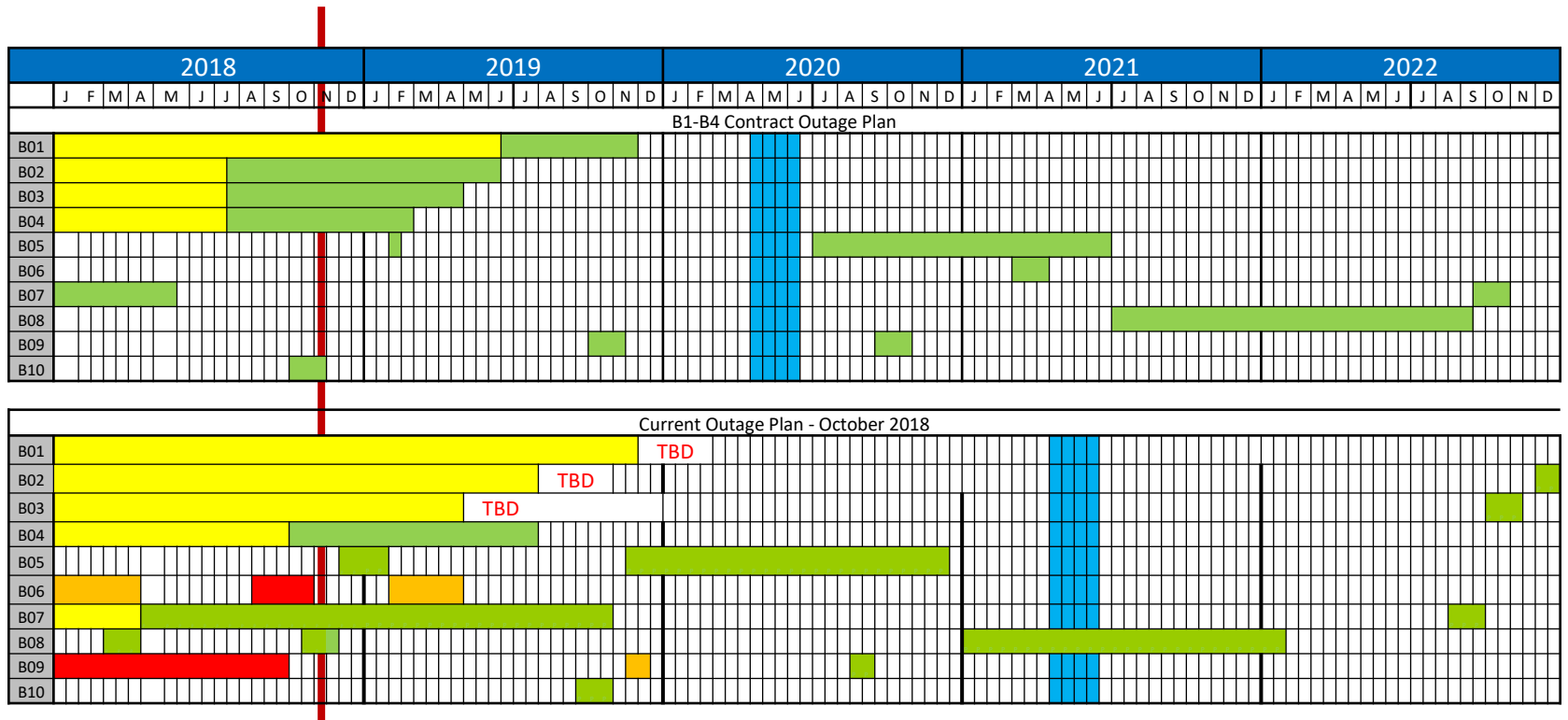


- Catalyst for restart of B5 to B8 rehab. Shutdown May 2014 due to min. air gap.
- 23 month construction duration
- Turbine and generator efficiencies achieved (~12%).
- Project Cost \$30.6 Million

- Rehab Challenges -

- B6 completion delayed by dropped head cover, new spider and contractor (~11 months).
- B9 vibration concern (outstanding punchlist item)
- B9 Kaplan pipe failure (~13 month outage)
- B9 exciter rub (~ 2 month outage)
- B6 exciter rub (~ 2 month outage)
- B7 completion extended for new head cover (~3 months).

- Rehab Challenges – PH1 Schedule Changes



Red = forced outage Yellow – waiting to start rehab work Gold = rehab schedule impact
Green = scheduled outage

- Rehab Challenges – B1-B4 Schedule

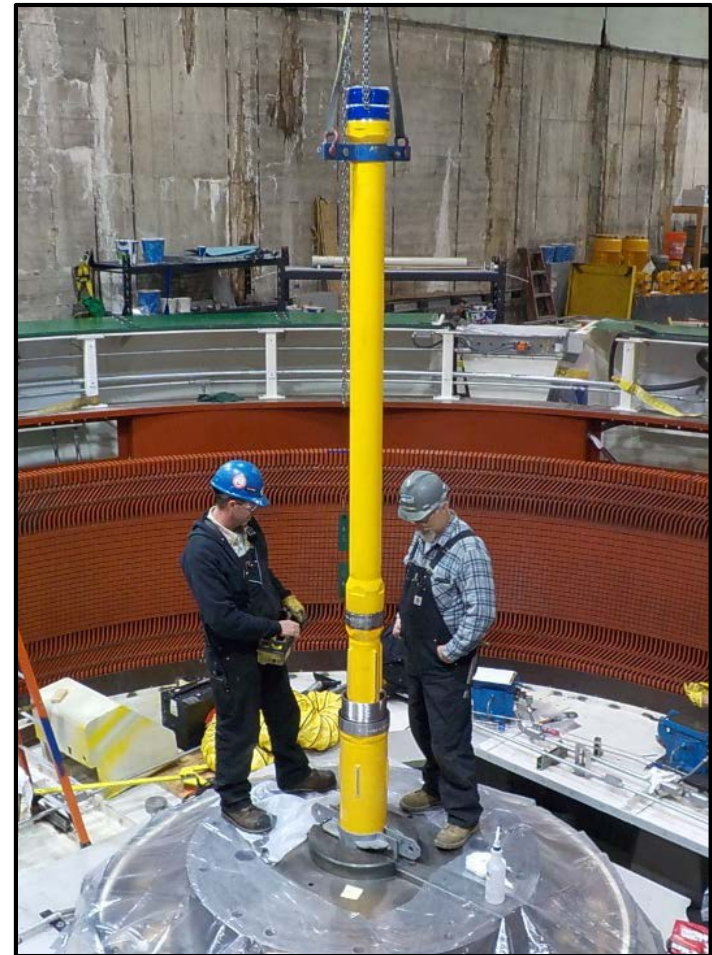
- Objective was to have 3 units undergoing rehab work at the same time.
- Per 16-60 contract: B4, B3 and B2 would undergo work simultaneously.

B1-B4 field work could not start because:

- B7 rehab underway
- B9 Kaplan pipe and exciter rub
- B6 exciter rub and punchlist

- Rehab Challenges -

B9 Kaplan Pipe Failure – June 2017

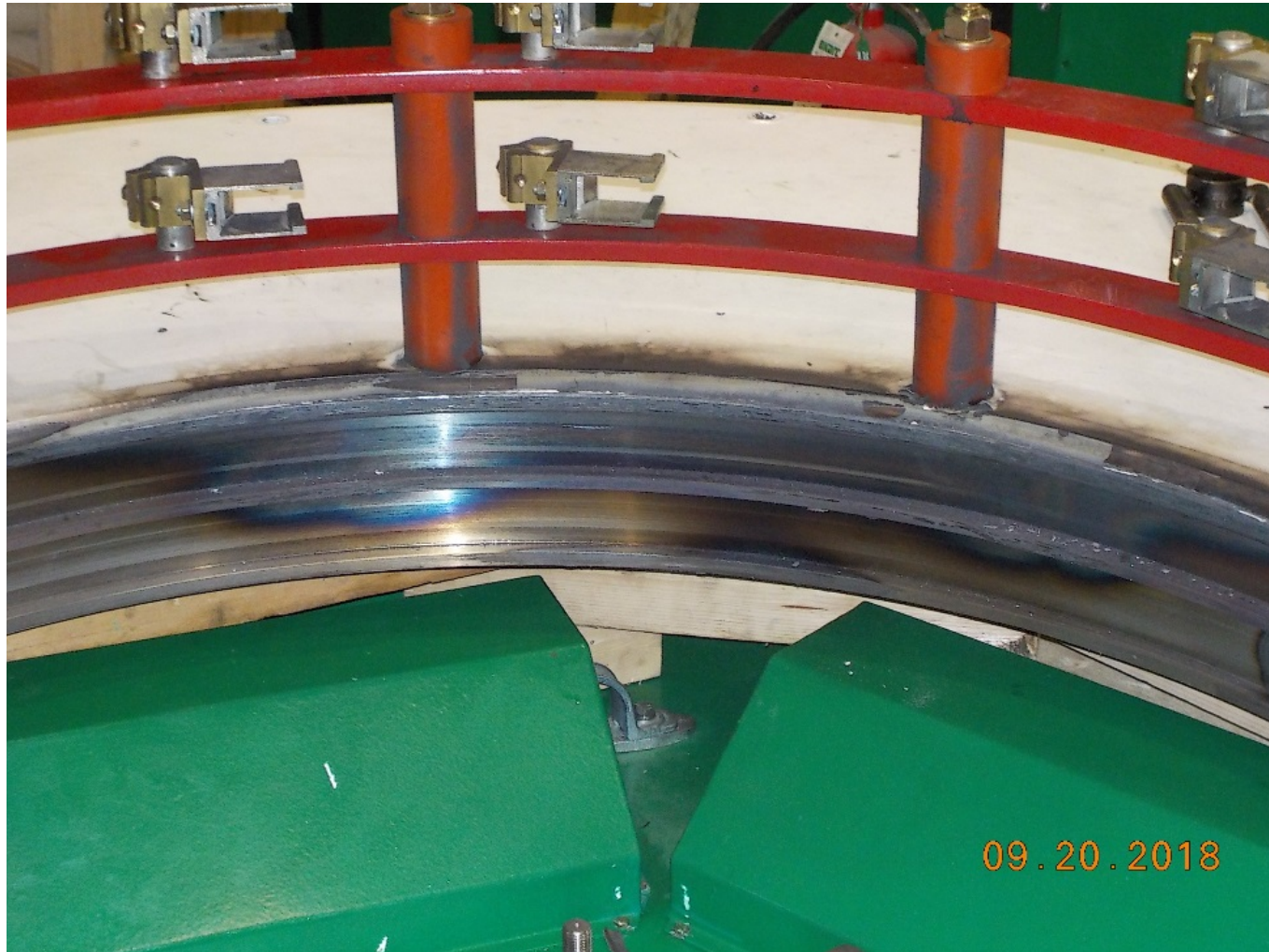


- Rehab Challenges - B9 Exciter Rub - July 2018



-Rehab Challenges-

B6 Exciter Rub August 2018

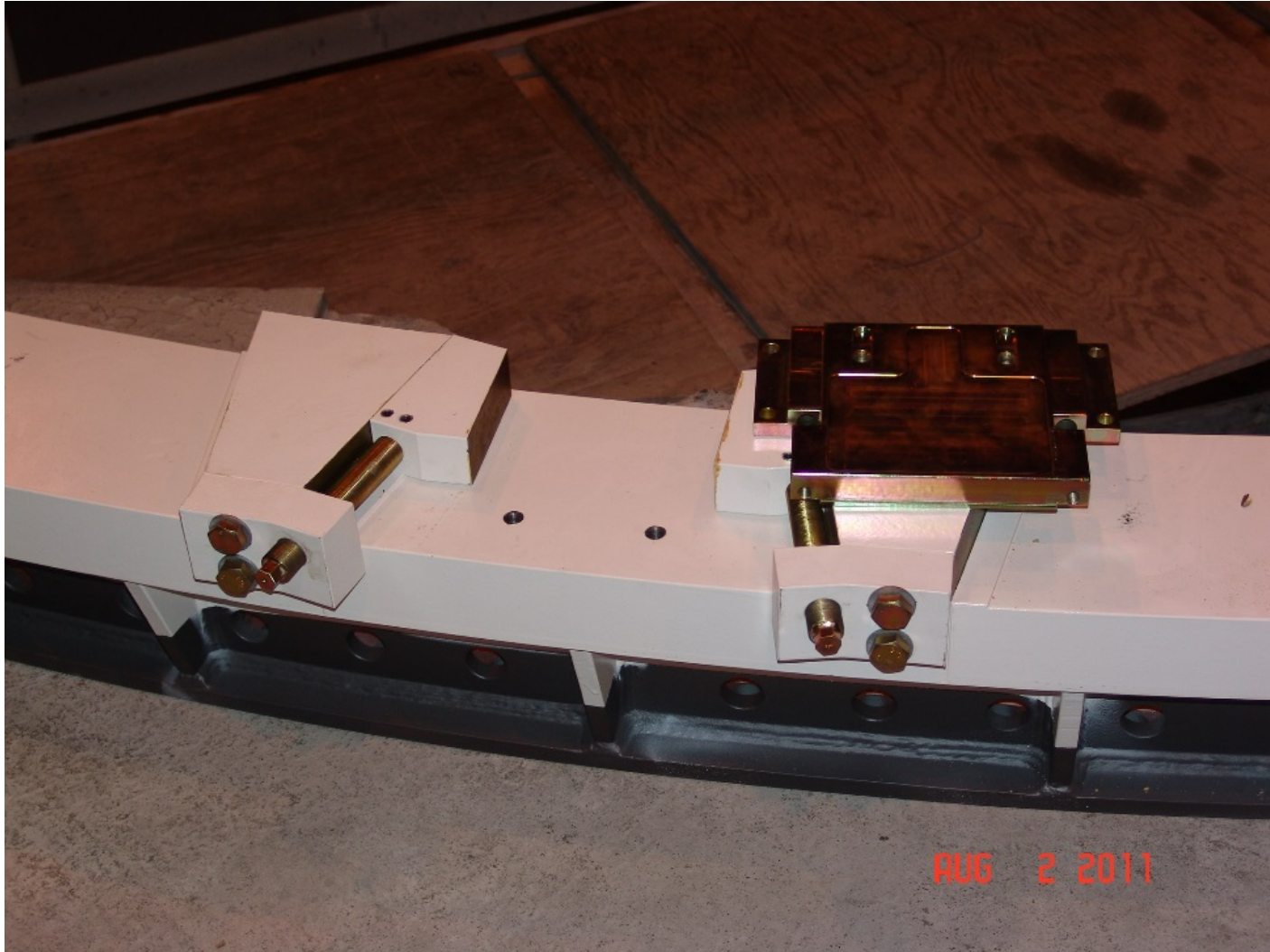


- Rehab Challenges -

B9, B6 Exciter Rub – Stator Sole Plate Installation



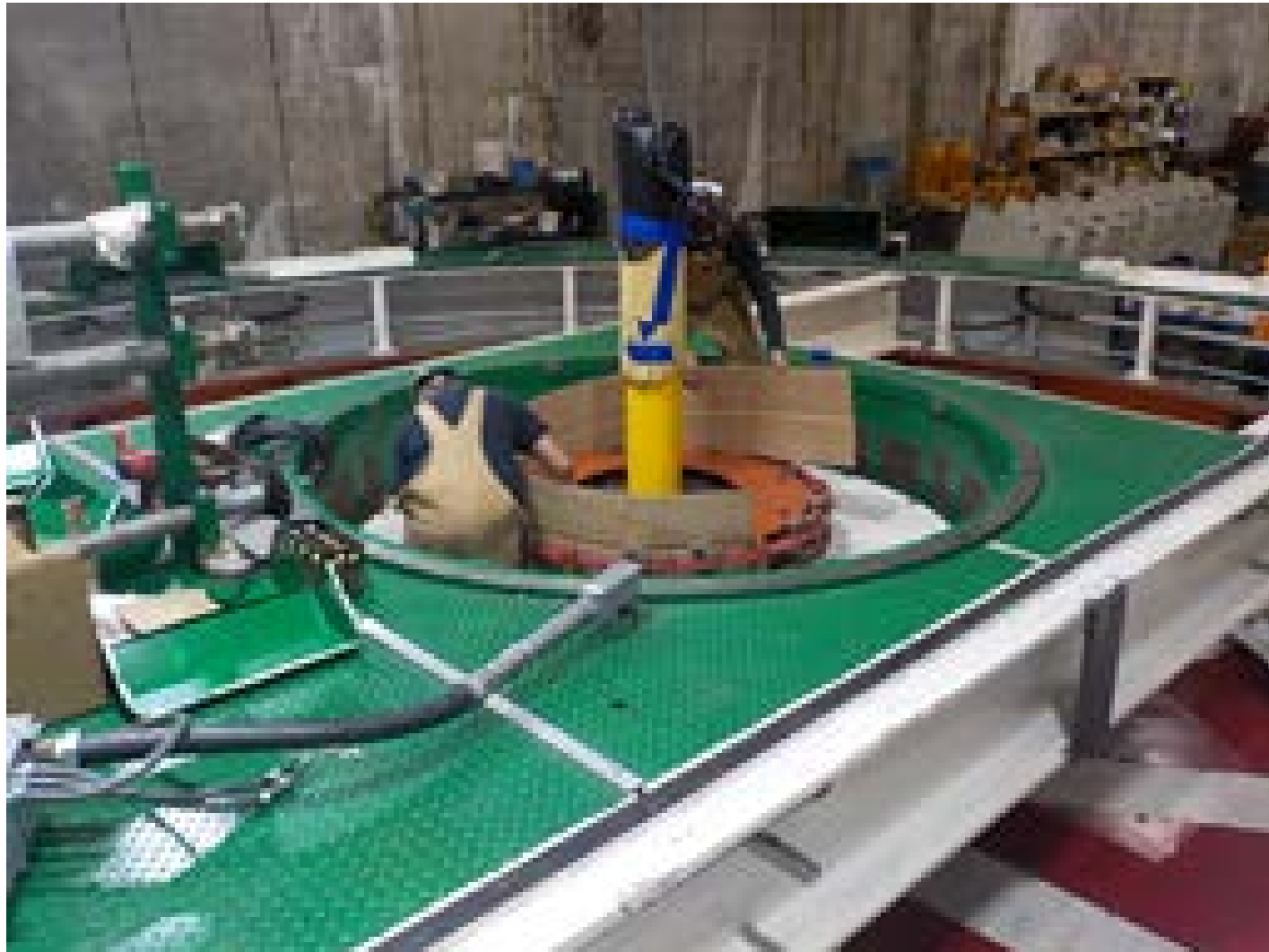
- Rehab Challenges - B-9 Stator Sole Plates



- Rehab Challenges - B-9 Stator Sole Plate Modifications



- Rehab Challenges - B9 Kaplan Pipe Failure



CHELAN COUNTY
POWER

www.chelanpud.org

-Rehab Schedule Evaluation-

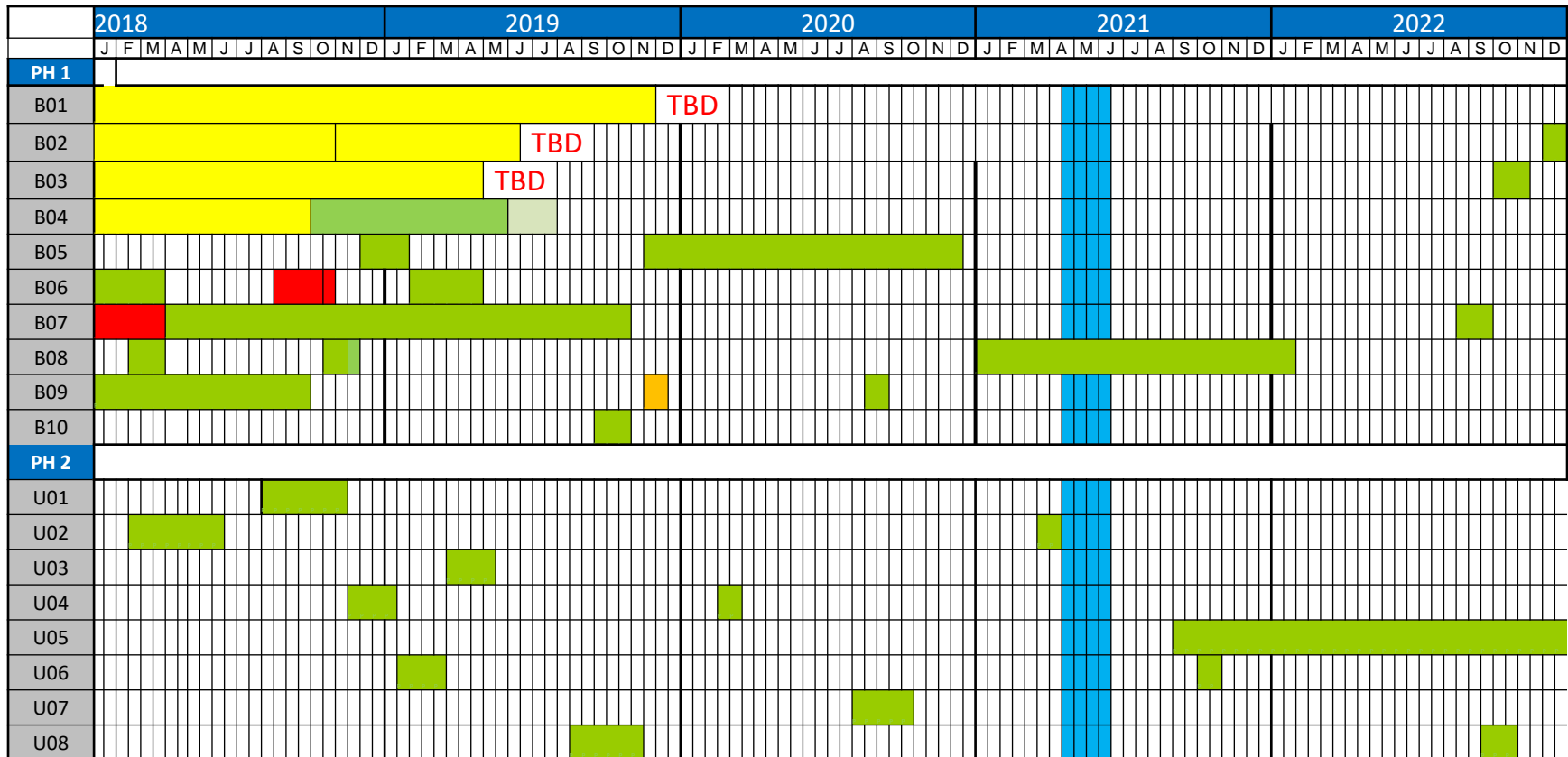
- Contractor and District performed extensive B6 lessons learned.
- District evaluated over 20 schedule alternatives.
 - Safety, resource availability, environmental, cost,...
- Preferred alternatives identified.
- Working to resolve contractual obligations.

-Rehab Schedule Evaluation-

Preferred alternative objectives

- Resolve outstanding rehab issues
 - B6 punchlist and B9 vibration
- Use Lessons learned – new procedures, consistent craft labor and vendors.
- Establish a schedule with contingency and sustainable productivity.
- Maximize unit availability for HCP.
- HCP check-in completed by 2021.

- Recommended Schedule -



- Recommended Schedule– PH1 Unit Work Plan

- B7 rehab continues until fall 2019
- B9 back on line Sept. 27, 2018
- B4 Turned over to Andritz October 4, 2018
- B6 back on line October 27, 2018
- B8 maintenance outage started Oct. 29 (6 weeks)
- B5 maintenance follows B8 (8 weeks)
- B6 punchlist follows B5 maintenance (8 weeks)
- B3-B2-B1 follows B6
- B5 follows B7 if all issues resolved

- Recommended Schedule - Cost Impacts

- B6 liquidated damages assessed for late completion. \$630k to District
- B7 new headcover cost ~ \$500k
- B9 Kaplan pipe repair – cost share in negotiation.
- B6, B9 stator move – contractor cost
- B6, B9 punchlist – contractor cost
- B1-B4 cost will be higher because not able to work on 3 units at one time - in negotiation
- B1-B4 completion delayed (~18 months)
- B5, B8 completion sooner (~12 months)

QUESTIONS?

